REMARKS

Claims 1 to 39 are pending in the application, of which claims 1, 15 and 31 are independent.

Claims 1-3, 10, 11, 13-18, 25, 26, 28-32, 34, 35, and 37 to 39 were rejected under 35 U.S.C. § 102(b) as being anticipated by Thomas et al. (ACM, Nov. 1995).

Independent claim 1 is directed to a method including selecting at least one area of a first image which relates to an area on a distortion grid in response to user action on a canvas, using a plurality of points local to the at least one area to calculate a distortion local to the area, extracting at least one component of the distortion, and applying the at least one component to a second area of the first image.

Thomas teaches a drawing editor that supports the creation of simple objects such as lines and polygons, and allows simple editing operations such as moving, scaling, and rotating. The portion of the Thomas reference that the Examiner points to as teaching the features of claim 1 instead discloses a constraining effect that takes place when a user scales an object. Specifically, the drawing editor supports a constraining effect that suggests that the bulk of the object that is not being "grabbed" and controlled by the mouse lags behind, while the four corners of the object are simultaneously distorted.

Thomas neither describes nor suggests calculating a distortion local to an area of an image, extracting a component of the distortion and applying the extracted component to a different area of the image. For at least these reasons, Applicant submits that claim 1 is allowable over Thomas. Claims 2, 3, 10, 11, 13-15 depend on claim 1 and are allowable for at least the same reasons.

Amended independent claim 16 is directed to a computer program product having instructions to cause a computer to use a plurality of points surrounding a first area of an image related to an area in a distortion grid to calculate at least one component of a distortion at the first area, and apply the at least one component of the distortion to a second area of the image.

Thomas neither describes or suggests using a plurality of points surrounding a first area of an image to calculate a component of a distortion at the first area of the image, much less

applying the component to a second area of the image. For at least these reasons, Applicant submits that claim 16 is allowable over Thomas. Claims 17, 18, 25, 26, 28 to 30 depend on claim 16 and allowable for at least the same reasons.

Independent claim 31 is directed to a computer program product having instructions to cause a computer to display a first image on a canvas, responsive to an input device controlled by a user, select an area of the first image, responsive to a selection by the user from a menu, extract at least one component of a distortion from the area, and responsive to movement and location of a cursor controlled by a user, apply the at least one component to a second area of the first image.

Thomas neither describes nor suggests extracting a component of a distortion from an area in response to a selection by a user from a menu, much less applying the component to a second area of the image in response to movement and location of a cursor controlled by the user. For at least these reasons, Applicant submits that claim 31 is allowable over Thomas. Claims 32, 34, 35, and 37 to 39 depend on claim 31 and allowable for at least the same reasons.

Claims 4, 19 and 36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Thomas et al. (ACM, Nov. 1995) in view of Reyzin (US 6,215,915). Thomas has been discussed above. Reyzin was cited mainly for the proposition that it teaches decomposing an affine transformation into a translation part and a linear transformation matrix.

Claim 4 recites that extracting a component of a distortion includes calculating an affine transform from a plurality of points and decomposing the affine transform into a translation and a linear transform matrix.

Reyzin teaches a method of transforming an image using a sequence of one-dimensional transformations. Reyzin neither describes nor suggests calculating an affine transform from a plurality of points. Neither Reyzin nor Thomas, alone or in combination, teach or suggest all the features of claim 4. For at least these reasons, Applicant submits that claim 4 is allowable. Claims 19 and 36 roughly correspond to claim 4 and are allowable for at least the same reasons.

Claims 5 to 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Thomas et al. (ACM, Nov. 1995) in view of Foley et al. (Computer Graphics: Principles and Practice, 2nd Edition).

Claim 5 recites that extracting a magnification component of a distortion includes calculating an affine transform from a plurality of points, decomposing the affine transform into a translation and a linear transform matrix, and determining the magnification by calculating the determinant of a linear transform matrix. Foley was cited mainly for the proposition that it teaches determining a magnification of a transformation represented by a matrix by calculating the determinant of the matrix. Foley is silent about calculating an affine transform from a plurality of points, much less decomposing the affine transform into a translation and a linear transformation matrix. Neither Foley nor Thomas, alone or in combination, teach or suggest all the features of claim 5. For at least these reasons, Applicant submits that claim 5 is allowable.

Claim 6 recites that extracting a rotation component of a distortion includes calculating an affine transform from a plurality of points, decomposing the affine transform into a translation and a linear transform matrix, and determining the rotation by calculating an angle from the elements of the linear transform matrix. Foley was cited mainly for the proposition that the examiner felt that it teaches deriving an angle of rotation from an affine transformation. Foley neither describes nor suggests calculating an affine transform from a plurality of points, much less decomposing the affine transform into a translation and a linear transformation matrix. Neither Foley nor Thomas, alone or in combination, teach or suggest all the features of claim 6. For at least these reasons, Applicant submits that claim 6 is allowable.

Claim 7 recites that extracting a scaling component of a distortion includes calculating an affine transform from a plurality of points, decomposing the affine transform into a translation and a linear transform matrix, and determining the scaling by calculating a pair of eigenvalues of the linear transform matrix, where each eigenvalue represents the amount of scaling in a direction represented by a corresponding projection matrix. Neither Foley nor Thomas, alone or in combination, teach or suggest the features of claim 7. For at least these reasons, Applicant

submits that claim 7 is allowable. Claims 8 and 9 depend on claim 7 and are allowable for at least the same reasons.

Claims 20 to 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Thomas et al. (ACM, Nov. 1995) in view of Reyzin (US 6,215,915) and further in view of Foley et al. (Computer Graphics: Principles and Practice, 2nd Edition).

Claims 20 to 24 depend indirectly on claim 16. Claim 16 is directed to a computer program product including instructions to use a plurality of points surrounding a first area of an image related to an area in a distortion grid to calculate at least one component of a distortion at the first area, and apply the at least one component of the distortion to a second area of the image. None of the references, alone or in combination, teach or suggest all of the features of claim 16. For at least these reasons, claims 20 to 24 are allowable over the art rejection.

Claims 12, 27 and 33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Thomas et al. (ACM, Nov. 1995) in view of Choi et al. (US 6,157,750). Choi was cited mainly for the proposition that it discloses a method of transforming a basic shape element of a character by using a virtual brush. Applicant respectfully disagrees with this characterization of the Choi reference.

Choi teaches a transformation method for generating a new shape of a prescribed size where the important form of the original shape, such as the thickness of the stroke, is maintained from the original shape. Choi is silent about providing a virtual brush that a user can use to select an area to which the extracted component is applied. The only mention of a brush in the Choi reference is in column 4, lines 58 to 62, which describes a medial axis of a character as being a curve drawn by the tip of a brush and the radius information of the medial axis transformation being the size information of how much the brush is pressed down.

Neither Choi nor Thomas, alone or in combination, teach or suggest all of the features of claim 12. For at least these reasons, Applicant submits that claim 12 is allowable. Claims 27 and 33 roughly correspond to claim 12 and are allowable for at least the same reasons.

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Respectfully submitted,

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